

ABSTRACT OF THE INVENTION

The present invention provides tangible means and methods for stimulation of angiogenesis via enhanced endothelial expression of core proteins having a syndecan-4 cytoplasmic region intracellularly. The tangible means include a prepared DNA sequence fragment having separate and individual DNA sequenced portions coding for an heparan sulfate binding extracellular domain, a central transmembrane domain, and a cytoplasmic domain coding for the syndecan-4 polypeptide. The prepared DNA sequence unitary fragment may be delivered to endothelial cells in-situ, both under in-vivo and/or in-vitro conditions, using suitable expression vectors including plasmids and viruses. The resulting transfected endothelial cells overexpress heparan sulfate binding, core proteins; and the resulting overexpression of these proteoglycan entities causes stimulation of angiogenesis in-situ.